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EXAMINER	
DANIELS, MATTHEW J	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/692,155	FROST ET AL.	
	Examiner	Art Unit	
	MATTHEW J. DANIELS	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-90* is/are pending in the application.

4a) Of the above claim(s) *25-90* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4 October 2007 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6, 16 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-323872 in view of Grisch (US Patent No. 4,302,499).

JP 08-323872 teaches the basic claimed process of making a fiber reinforced composite wall panel (seamless cladding panel) including, providing a mold, spraying a gel coat (21) (coating layer) against the mold surface, applying a first layer of fibers and resin (22) (first laminate layer), applying a central layer of fibers and resin (23) (core layer), applying a second layer of fibers and resin (24 or 26) (second laminate layer) and curing the resin to form said fiber reinforced composite wall panel (see Abstract and, Figures 5 and 7).

Regarding claim 1, JP 08-323872 does not teach applying a facing veil layer over the second laminate layer, wherein the facing veil layer includes fibers and a binder and further, wherein the resin of the second laminate layers wets the fibers of the facing veil layer. However, the use of a facing veil layer is well known as evidenced by Grisch ('499) who teaches a resin impregnated veil layer that is applied over a fiber reinforced composite, wherein the resin of the fiber reinforced composite flows though the veil layer (see col. 3, lines 4-14, col. 5, lines 54-66). Therefore, it would have been obvious for one of ordinary skill in the art to apply a surface veil layer as taught by Grisch ('499) to the laminate in the process of JP 08-323872 because (a) Grisch ('499) specifically teaches that a surface veil layer provides for improved corrosion resistance, hence providing for an improved product, (b) doing so creates a barrier on the surface of the veil or fabric that holds the reinforcing fibers internal to the composite, and/or (c) application of a "veil" or fabric to a fibrous material is a known and conventional technique, and application of this technique to the process of JP 08-323872 would merely provide yield the predictable result that the reinforcing fibers would be held together.

In regard to claims 2 and 3, JP 08-323872 teaches spraying a gel coat layer (21) and curing said gel coat layer prior to applying the first layer of fibers and resin (22) (first laminate) (see Abstract).

Specifically regarding claims 4-6 and 16, JP 08-323872 teaches a first layer of glass fibers and resin (22) (first laminate layer), a central layer of glass fibers and resin (23) (core layer) and a second layer of glass fibers and resin (24) (second laminate layer). Further, JP 08-323872 teaches a polyester resin. It is submitted that a polyester resin is curable at room temperature.

Regarding claims 18 and 19, JP 08-323872 does not teach that the first and second laminates are composed of a plurality of layers. However, Grisch ('499) teaches that the number of layers required by a fiber-reinforced laminate depends on the desired mechanical characteristics (see col. 1, lines 47-55). Therefore, it would have been obvious for one of ordinary skill in the art to provide multiple fiber-reinforced layers as taught by Grisch ('499) to the fiber reinforced laminate in the process of JP 08-323872 because, Grisch ('499) specifically teaches that the number of layers required by a fiber-reinforced laminate depends on the desired mechanical characteristics, hence providing for an improved product with superior mechanical characteristics.

3. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-323872 in view of Grisch (US Patent No. 4,302,499) and in further view of Bledsoe *et al.* (US 2003/0143373 A1).

JP 08-323872 in view of Grisch ('499) teaches the basic claimed process as described above.

Regarding claim 8, although JP 08-323872 in view of Grisch ('499) teaches a polyester resin, JP 08-323872 in view of Grisch ('499) do not teach that the polyester resin is curable at 80 ^{O}F for about 45 minutes. Bledsoe *et al.* (US 2003/0143373 A1) teach a gel coat polymer resin that cures at room temperature (80 ^{O}F) in 35 minutes (about 45 minutes). Therefore, it would have been obvious for one of ordinary skill in the art to cure at 80 ^{O}F for about 45 minutes as taught by Bledsoe *et al.* (US 2003/0143373 A1) the gel coat layer in the process of JP 08-323872 in view of Grisch ('499) because, Bledsoe *et al.* (US 2003/0143373 A1) teach that such curing

provides for a hard, outer coating, hence providing for a laminate with improved aesthetic qualities and also because, JP 08-323872 in view of Grisch ('499) teaches a polyester resin, which is a room temperature curable resin, hence suggesting the curing conditions of Bledsoe *et al.* (US 2003/0143373 A1).

In regard to claim 9, JP 08-323872 in view of Grisch ('499) and in further view of Bledsoe *et al.* (US 2003/0143373 A1) do not teach heat curing of the gel coat. However, the use of heat to cure a polymer resin is well known. Therefore, it would have been obvious for one of ordinary skill in the art to provide a heating oven to cure the polymer gel coat in the process of JP 08-323872 in view of Grisch ('499) and in further view of Bledsoe *et al.* (US 2003/0143373 A1) because of known advantages that heat curing provides such as, reduced curing time, hence providing for an improved process by increasing productivity.

Specifically regarding claim 10, JP 08-323872 in view of Grisch ('499) does not teach removing trapped air from the first laminate. Bledsoe *et al.* (US 2003/0143373 A1) teaches a process for making a seamless fiber-reinforced panel including, providing a mold surface, applying a gel coat layer, applying a first layer of fibers and resin (first laminate layer) and applying a central reinforcement layer (see ¶¶ 13-16). Further, Bledsoe *et al.* (US 2003/0143373 A1) teaches removing trapped air form the first layer of fibers and resin prior to applying the central reinforcement layer (see ¶ 14, lines 32-35). Therefore, it would have been obvious for one of ordinary skill in the art to remove trapped air as taught by Bledsoe *et al.* (US 2003/0143373 A1) from the first layer of fibers and resin prior to applying the central reinforcement layer in the process of JP 08-323872 in view of Grisch ('499) because of known advantages such as, reduced

porosity, which results in obtaining a fiber-reinforced laminate having superior mechanical characteristics.

4. Claims 11-15, 17 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-323872 in view of Grisch (US Patent No. 4,302,499) and in further view of Kia *et al.* (US 2004/0023012 A1).

JP 08-323872 in view of Grisch ('499) teaches the basic claimed process as described above.

Regarding claims 11-13, JP 08-323872 in view of Grisch ('499) do not teach a specific fiber content and thickness of the laminate layers. However, Grisch ('499) teaches that the number of layers, hence the thickness, required by a fiber-reinforced laminate depends on the desired mechanical characteristics (see col. 1, lines 47-55). Further it is noted that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber content. Kia *et al.* (US 2004/0023012 A1) teach a fiber-reinforced laminate having a fiber-reinforced laminate layer (18) including 20-60% by weight reinforcing fibers (see Abstract) and a thickness of about 10 mm (about 0.45 inches). Therefore, it would have been obvious for one of ordinary skill in the art to provide 20-60% by weight reinforcing fibers and a laminate layer thickness of 10 mm (0.45 inches) as taught by Kia *et al.* (US 2004/0023012 A1) to the laminate layers in the process of JP 08-323872 in view of Grisch ('499) because Kia *et al.* (US 2004/0023012 A1) teach that such a proportion is appropriate for providing the strength of the entire laminate (see ¶ 17, lines 3-4) such that the resulting product functions as desired. Further, because the mechanical characteristics of a fiber-reinforced composite are determined by the fiber content, it would have

been obvious for one of ordinary skill in the art to use routine experimentation to determine an optimum fiber content of 23-25% in the process of JP 08-323872 in view of Grisch ('499) and in further view of Kia *et al.* (US 2004/0023012 A1) because Kia *et al.* (US 2004/0023012 A1) teach that the fiber content in the laminate determines the strength of the laminate and also because, it is well known that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber content, hence because the fiber content is a result-effective variable. Furthermore, because Grisch ('499) teaches that the number of layers, hence the thickness, required by a fiber-reinforced laminate depends on the desired mechanical characteristics, it would have been obvious for one of ordinary skill in the art to use routine experimentation to determine an optimum layer thickness of 0.45 inches in the process of JP 08-323872 in view of Grisch ('499) and in further view of Kia *et al.* (US 2004/0023012 A1) because Grisch ('499) teaches that the number of layers, hence the thickness, required by a fiber-reinforced laminate depends on the desired mechanical characteristics, hence because the layer thickness is a result-effective variable.

In regard to claim 14, JP 08-323872 teaches chopped glass fibers.

Specifically regarding claims 15 and 20, JP 08-323872 teaches a fiber length of approximately 0.5 inches in the first and second laminates and, about one inch in the central layer. Kia *et al.* (US 2004/0023012 A1) teach that it is known to make a fiber reinforced laminate using glass fiber having a length of 0.25-1 inches. It is submitted that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber length, hence that the fiber length is a result effective variable. Therefore, it would have been obvious for one of ordinary skill in the art to use routine experimentation to determine an optimum fiber length of

0.625 inches in the first and second laminates and, one inch in the central layer in the fiber-reinforced laminate obtained by the process of JP 08-323872 in view of Grisch ('499) and in further view of Kia *et al.* (US 2004/0023012 A1) because Kia *et al.* (US 2004/0023012 A1) teach that is known to use glass fibers having a fiber length of 0.25-1 inches in making a fiber reinforced laminate and also because, it is well known that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber length, hence because the fiber length is a result-effective variable.

Regarding claim 17, JP 08-323872 in view of Grisch ('499) does not teach a curing agent. Noting that JP 08-323872 in view of Grisch ('499) teaches a polyester resin, it is further noted that, Kia *et al.* (US 2004/0023012 A1) teach 1.95% by weight MEKP as a typical curing agent for room temperature curing of polyester (see ¶ 47, lines 14-15 and ¶ 53). Therefore, it would have been obvious for one of ordinary skill in the art to provide 1.95% by weight MEKP as taught by Kia *et al.* (US 2004/0023012 A1) to cure the polyester resin at room temperature in the process of JP 08-323872 in view of Grisch ('499) because, Kia *et al.* (US 2004/0023012 A1) specifically teach that 1.95% by weight MEKP provides for room temperature curing, hence providing for a simpler process by eliminating the need of heating equipment and also because, JP 08-323872 specifically teaches a polyester resin, hence suggesting the use of 1.95% by weight MEKP as taught by Kia *et al.* (US 2004/0023012 A1).

Regarding claims 21 and 23, JP 08-323872 in view of Grisch ('499) does not teach a fiber diameter of 11-13 μm. Kia *et al.* (US 2004/0023012 A1) teach that it is known to make a fiber reinforced laminate using glass fiber having a diameter of 5-15 μm (see ¶ 45). It is submitted that the mechanical characteristics of a fiber-reinforced composite are determined by

the fiber diameter, hence that the fiber diameter is a result effective variable. Therefore, it would have been obvious for one of ordinary skill in the art to use routine experimentation to determine an optimum fiber diameter of 5-15 μm of the glass fibers in the core and veil layers in the fiber-reinforced laminate obtained by the process of JP 08-323872 in view of Grisch ('499) and in further view of Kia *et al.* (US 2004/0023012 A1) because Kia *et al.* (US 2004/0023012 A1) teach that is known to use glass fibers having a fiber diameter of 5-15 μm in making a fiber reinforced laminate and also because, it is well known that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber diameter, hence because the fiber diameter is a result-effective variable.

In regard to claims 22 and 24, Grisch ('499) teach that acrylic resin is an equivalent alternative to polyester resin (see col. 3, lines 38-41). Therefore, it would have been obvious for one of ordinary skill in the art to use an acrylic resin as taught by Grisch ('499) as an equivalent alternative to the polyester resin in the process of JP 08-323872 in view of Kia *et al.* (US 2004/0023012 A1) because, Grisch ('499) teach that acrylic and polyester resins are equivalent alternatives in making fiber-reinforced laminates.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-323872 in view of Grisch (US Patent No. 4,302,499) and in further view of Reinisch (US Patent No. 4,261,330).

JP 08-323872 in view of Grisch ('499) teaches the basic claimed process as described above.

Regarding claim 7, although JP 08-323872 in view of Grisch ('499) teach spraying a gel coating, JP 08-323872 in view of Grisch ('499) do not teach that the gel coating is a dry polymer film layer. Reinisch ('330) teaches that a spray coated polyester el coat and an acrylic film are equivalent alternatives for providing an exterior coating for a laminate (see col. 10, lines 57-59). Therefore, it would have been obvious for one of ordinary skill in the art to provide an acrylic film as taught by Reinisch ('330) as an equivalent alternative to the gel coating in the process of JP 08-323872 in view of Grisch ('499) because, Reinisch ('330) specifically teaches that a spray coated polyester gel coat and an acrylic film are equivalent alternatives for providing an exterior coating for a laminate that provides for improved weatherbility, hence providing for an improved product.

Response to Arguments

6. Applicant's arguments filed 27 July 2007 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

a) This is a new rejection (page 19, line 3) although the Examiner repeats the same rejections verbatim in the final Office Action (page 18, third paragraph), and there is no basis for making the Office Action final. The Examiner for the first time asserts that Grisch provides that the veil or fabric has been preimpregnated. Grisch does not disclose or in any way teach a light facing veil comprising a fibrous strand and a "binder system" onto any laminate layer for any reason. Applicants note that Grisch emphasizes that the veil comprises a fabric or veil that may be preimpregnated.

b) The claims are not being construed in accordance with the proper canons of claim construction. The binder cannot be the same as the resin.

c) One of ordinary skill would be motivated to incorporate the veil between the layers 23 and 26 of the Kimio reference to provide strength.

d) The speculative benefits cited by the Examiner do not alone provide the type of reason that would lead a skilled artisan to the inventive method of Claim 1 (Citing *KSR Int'l Co. v. Teleflex, Inc.,* 127 S.Ct at 1741 (2007) "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art..."). Nothing else in the prior art references would lead a skilled artisan to position a veil comprised of fibrous strands and a binder system onto a second laminate as set forth in Claim 1. Absent a proper reason to combine, obviousness is lacking.

e) Claim 24 requires that the binder system is selected from particular materials. Grisch does teach various types of resins for use in the SMC layer in the passage cited, but is completely silent to any type of binder system in the veil, let alone those of Claim 24.

7. <u>These arguments are not persuasive for the following reasons:</u>

a,b) In the Non-Final Rejection mailed 25 September 2006, on page 4 at line 14 the Grisch patent is cited (3:4-14) for its teaching of a resin impregnated veil layer, wherein the resin of the fiber reinforced composite flows through the veil layer. This previously cited portion of the Grisch reference is reproduced below:

> The properties of the veil or fabric used with the SMC are critical. During compression molding, resin with which the veil or fabric has been preimpregnated and/or thermosetting resin from the SMC layer is liquified by heat generated during the molding and is caused to flow through the fabric, creating a barrier or resin-rich layer on the other side of the fabric. Thus, during the molding operation, the fabric material holds the reinforcing fibers internal to the composite while allowing the resin to pass therethrough to be deposited at the surface of the composite article formed. Since consider-

It is submitted that this position was set forth first in the Non-Final Rejection and subsequently maintained. In particular, "and/or" is recited at 3:7, which indicates that the Grisch patent should be interpreted such that the resin from the SMC layer and resin with which the veil has been preimpregnated flow through the fabric. Alternatively, the resin from the SMC layer would flow through the veil. However, in the broadest reasonable interpretation of and/or, it is submitted that either interpretation is valid. Applicants' remarks appear to concede that the veil is preimpregnated (page 20, line 6), and it is unclear to the Examiner why the pre-impregnation of the veil should not be interpreted to read on the claimed invention.

It is submitted that in view of the position set forth previously (page 4, line 14 of the Non-Final Rejection mailed 25 September 2006), that a final rejection was proper, and that the claim was properly construed in light of the portion of the Grisch reference reproduced above and other portions of the reference cited previously.

It is not clear from the independent claim that the binder used with the veil or fabric must be different than the binder used with the fibrous reinforcement. Additionally, substitution of one known material (resin) for another is generally within the level or ordinary skill in the art

obvious. In view of the wide range of resins that are suggested by Grisch at 3:39-41, many resins may obviously be used interchangeably or substituted for one another.

c) It is submitted that the "veil" of Grisch and the portion of column 3 reproduced above suggests that the veil be placed on the surface, and not in a configuration that would destroy its veiling function, as asserted by Applicants' remarks.

d) It is submitted that the portion of the *KSR int'l Co. v. Teleflex, Inc.* case reproduced does not support the conclusion for which it is relied upon. Motivation was provided for the combination, and therefore this is not a situation where the rejection merely demonstrated that each of the claimed elements was known in the prior art. The claimed elements were described in the references, and one of ordinary skill in the art would have recognized the predictable results of the combination (namely improved corrosion resistance) as set forth in the rejection, and additionally improving the appearance of a surface or surfaces (Grisch, 6:26, 4:50-55) by masking fibers. In the combination with Kimio, the Kimio laminate would be improved in appearance and corrosion resistance by the Grisch veil.

e) The SMC layer is formed of nylon, glass fiber or thermoplastic material (polypropylene) and uses binders such as polyurethane, acrylic, phenolic, polyester, or epoxy. The veil layer is formed of nylon, glass fiber, or polypropylene and is preimpregnated. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to use types of resins already disclosed by Grisch as the preimpregnating resin for the veil material.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Rozek (USPN 6204209) teaches layers (16, 18) composed of fibers and containing a binder (4:7-22), these layers being thin relative to the fibrous reinforcement (12) and placed against the fibrous reinforcement. These layers (16, 18) act as veils.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew J. Daniels/
Primary Examiner, Art Unit 1791
4/12/08